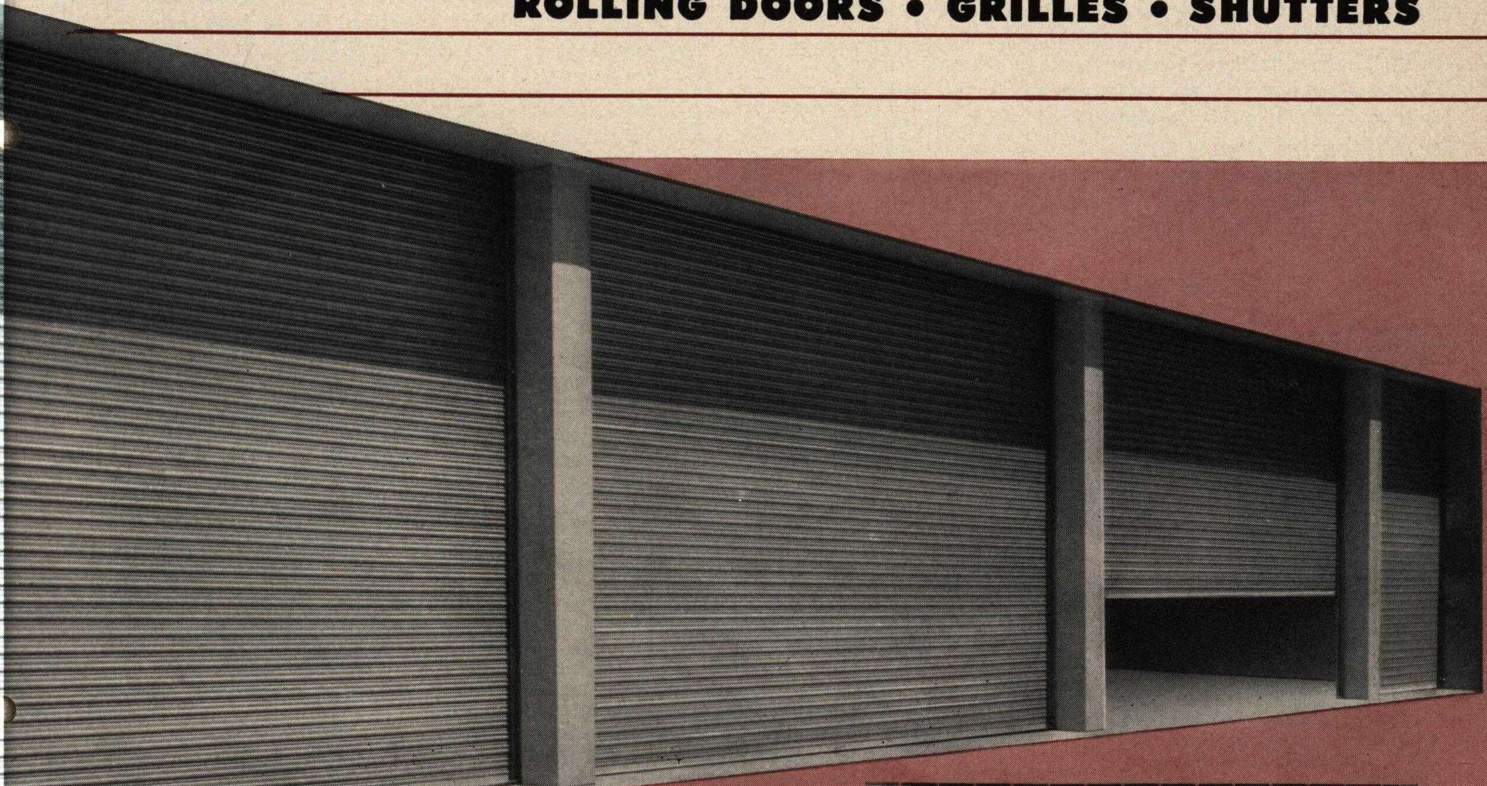
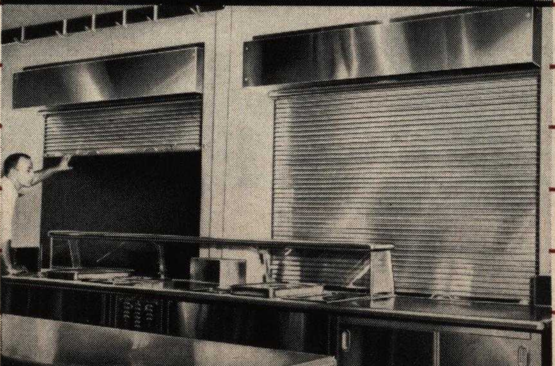
16g
Cor

CORNELL

steel, aluminum, stainless, bronze

ROLLING DOORS • GRILLES • SHUTTERS





1828 — **132 YEARS** — 1960

CORNELL IRON WORKS, INC.

LONG ISLAND CITY 6, NEW YORK

CATALOG I36

CORNELL ROLLING DOORS

* member of the
Hundred Year Association
of New York, Inc.

..... since 1828

Makers of fine doors, shutters and grilles. CORNELL IRON WORKS, INC., owes its origin to George CORNELL who purchased his employer's metal business in 1828 and established his shop in New York City. His younger brothers, John B. and Wm. W. succeeded him and John B. acquired one of the first patents on Rolling Steel Doors in 1854, incorporating them into CORNELL cast iron store fronts for protection. Contributions from the Company shops to the Civil War included turret tops for the Monitors and gun bases for General Grant's artillery during the Seige of Vicksburg. John M. succeeded his father and uncle. It was during his period that the CORNELL IRON WORKS erected the frame work for the Statue of Liberty furnishing all the supporting iron work and interior stairways for the bronze shell donated by France. John M's sons Milton L. and John B. succeeded him launching the present period of specialization in Rolling Steel Doors and allied products. In 1925 the shops were moved to present modern one Story Factory Buildings in Long Island City, N. Y.

The company since its founding has been continuously managed by succeeding generations of the CORNELL family. Now in its 131st year CORNELL has an unrivalled term of experience and a reputation for responsibility and uninterrupted service to the users of its products.

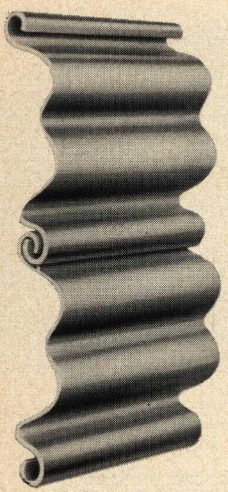
recommended uses

CORNELL Rolling Doors have become a standard in the industry with existing installations in use for over ninety years.

CORNELL Rolling Doors can be installed in practically all door openings and are in wide demand for piers, warehouses, factories, truck terminals, military installations, garages, power plants, hospitals, shopping centers etc.

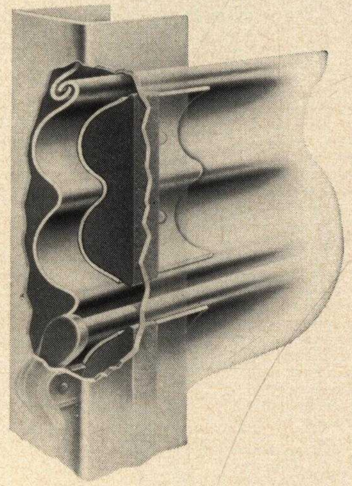
Since CORNELL Doors are available in all metals—aluminum, stainless steel and bronze, installations are architecturally correct for monumental structures like museums, banks and public buildings of all types.

slats



CORNELL special design slats with interlocks are formed to shed water and to allow frictionless coiling.

The unique double arch ⅞" deep and 3⅝" wide construction is stiffer and more rugged. The clean horizontal lines harmonize with any Architectural treatment.

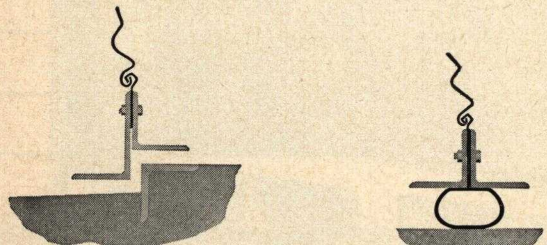


weathering baffles

CORNELL Compressible Weathering Baffles are made of DuPont Neoprene compressible sponge, firmly bonded to a metal retainer. This replaceable assembly is secured to both ends of each slat where it enters the guides. The Baffles close the gaps in the slats without adding friction to the normal operation of the door, as with the usual weathering. The heavy structural steel door guides at the jambs are entirely unobstructed by weathering attachments, making maintenance and repairs quick and uncomplicated. The Baffles reduce the passage of wind and water very appreciably. The replaceable construction makes it readily available for existing doors.

The Baffles give the advantage of practically noiseless operation, a real asset in an all metal door.

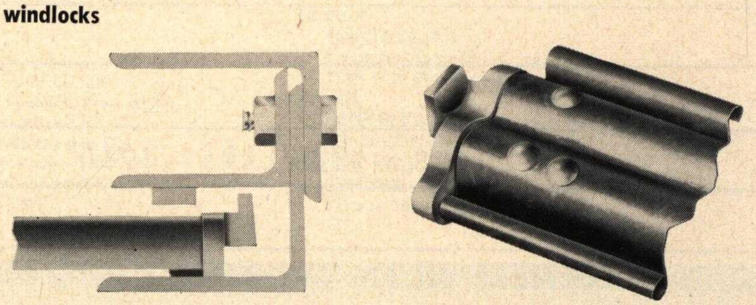
bottom bar weathering



All metal consisting of two angles back to back with ½" step down on the weather side over a step up sill provided by others.

Compressible rubber extrusion attached to double angle bottom bar. The sill is flush. The Rubber Seal is replaceable.

windlocks



Special windlock-endlock castings attach to slats at suitable intervals and engage locking bar in guides preventing curtains from blowing out. Castings are designed to take weathering baffles if desired. Windlocks are not required with CORNELL heavy rigid guide and double arched slat construction except on very wide openings under severe wind exposure conditions.

general description

CORNELL Rolling Doors roll up out of the way overhead and conserve valuable floor space.

They are quick and easy to operate, durable as only an all metal structure can be, afford fire protection and excellent general protection.

The CORNELL door proper is built up of a series of interlocking metal slats. The door is stiff against pressure but flexible to roll up around a counter balance shaft. CORNELL doors are economical to install, neat in appearance and will operate for years with minimum maintenance.

See "ELEMENTS" of a CORNELL Rolling Door this page for a pictorial description of the component parts and assembly of a standard chain operated CORNELL door.

fine workmanship

CORNELL Rolling Doors, Shutters and Grilles are manufactured by skilled craftsmen in a modern factory equipped with every facility for cold rolling, fabricating, machining, welding, finishing and spraying.

Metals and other materials used are the best produced by American mills. The quality of both workmanship and material is evident in the fine appearance of the finished product.

service and guarantee

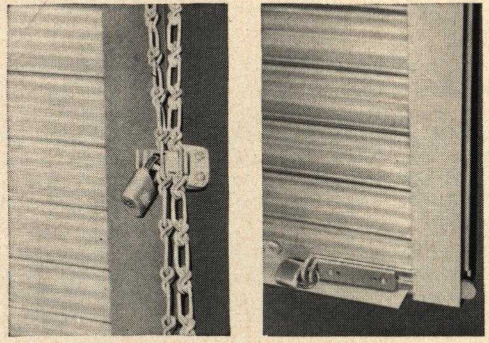
CORNELL Doors, Shutters and Grilles are guaranteed against defect in workmanship and material for one year. An installation need never be replaced for want of a part or service.

A permanent engineering record of every order is filed in a fire proof vault. In case of damage or accident CORNELL can quickly supply genuine replacement parts. Such parts are available today for CORNELL doors and other products installed many years ago and CORNELL representatives in principal cities throughout the country can provide the necessary field service when required.

progress

The unique weathering features and full vision windows for rolling doors, the rolling grille introduced by CORNELL to America in 1931, the refinement of Architectural aluminum extrusions, with concealed fastenings for counter shutters and grilles, and the wider use of stainless steel and nonferrous metals are evidence that the development of finer Doors, Shutters and Grilles is a continuing process at the CORNELL IRON WORKS.

locking



Self-coiling Doors are secured by malleable iron slide bolts fastened to the bottom bar and engaging slots in the side guides.

Hasps are provided for padlocking. (Cylinder Locks can be provided at additional cost.)

Hand Chain Doors are provided with a latch fastened to the guide to which the hand chain is secured. Provision is made for Padlocking.

Hand Crank Doors are arranged for padlocking at the crank gear box.

full vision window

Introduced and patented by CORNELL in 1952 for Rolling Steel Doors. Available in 14", 18" and 22" heights, 20" wide, 3/4" thick, of clear shatter-resistant acrylic type plastic. Each transparent plastic slat has a convex top edge and a concave bottom edge, making a ball and socket type of joint which gives a weatherproof and flush surface both inside and out, and permitting full vision which is often an important security factor. The window adds appreciably to the light inside. Two or more are often used on larger doors.

pass door

CORNELL Doors can be equipped with a pass or wicket door. These small doors and their frames are hinged to the rolling door guide and swing clear of the opening when the Rolling Door is open. Not recommended unless impossible to provide a service entrance elsewhere.

movable posts

CORNELL Doors can be furnished with intermediate posts or pilasters for very wide openings. They hinge up, slide to one side, or lift out to clear the full opening. Hinged type operated by hand winch or motor drive.

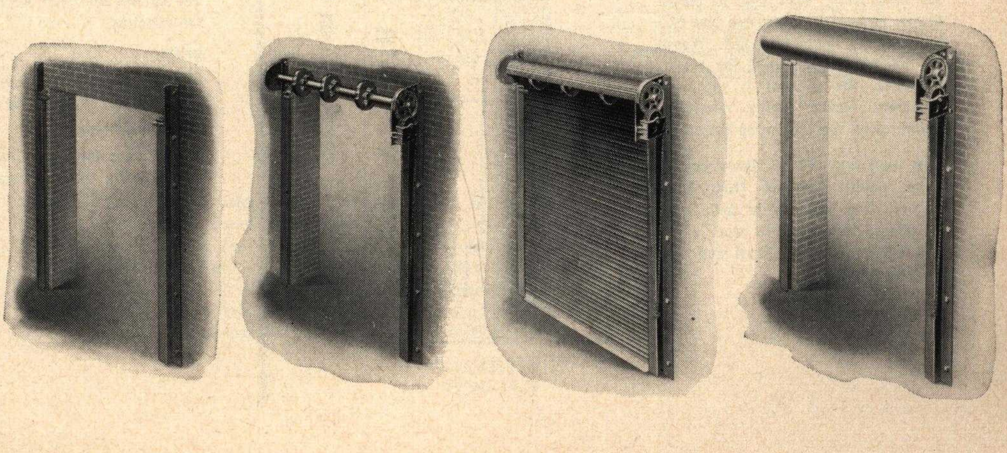
elements

1 Heavy structural steel Guides support vertical load on jambs to which they are usually fastened with through bolts at top and expansion bolts below.

2 Steel Brackets attach to Guides and support counter balance Shaft—a single rigid assembly assuring proper alignment and uniformly distributing entire vertical load on jambs. NO LOAD IS CARRIED BY LINTEL.

3 Heavily galvanized Door Curtain in place, fastened to Shaft, is then coiled up and covered with a self supporting galvanized steel hood fastened to the Brackets.

4 Chain and gearing shown may be left or right hand. See other methods of operation Pages 4 and 5.



FOUR METHODS OF OPERATION

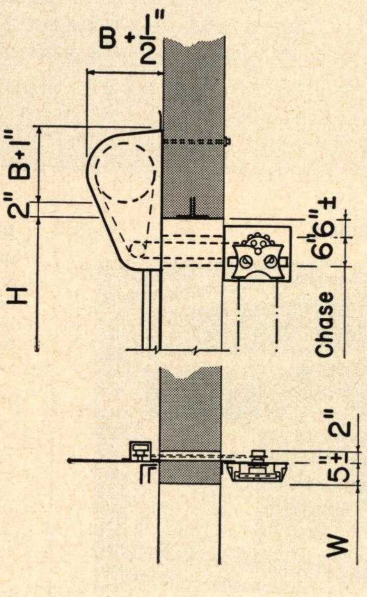
1 self coiling types SCF and SCB

The quickest method of operation for small door and window openings. Lifting handles and locking device on bottom bar can be furnished on either or both sides of opening. **Self Coiling Face of Wall,** Type SCF construction, is suitable for openings up to 100 square feet and leaves masonry opening clear and unobstructed. **Self Coiling Between Jambs,** Type SCB construction, permits door to coil under lintel with guides on jambs projecting into opening or protected in reveals in jambs.

2 chain and gear types CGF and CGB

For doorways of any size exceeding practical area and height for self-coiling push-up operation. Shaft revovled by endless hand chain, sprocket, and either single or compound gearing. Standard **Chain Gear Face of Wall** type CGF is generally desirable. Where headroom above lintel will not permit face mounting, **Chain Gear Between** jambs type CGB may be used. Door coils under lintel with guides on jambs projecting into opening or protected in reveals in jambs.

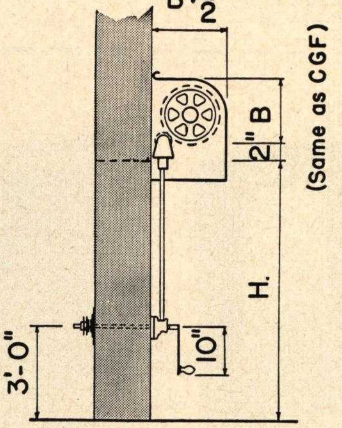
thru wall type CGTF. Doors mounted on the exterior face of wall may be operated from the interior by using a continuous roller chain through a slot in the wall to connect the hand chain sprocket with door shaft outside. The standard location shown may be varied to suit special conditions. The exterior hood is designed to shed water and the gears are protected from the weather.



3 hand crank & gear types HCF and HCB

Slower and more expensive than standard hand chain, doors may be **Hand Crank Face** of Wall mounted type HCF or **Between** Jambs type HCB. Though less efficient in translating the operating force, the operator is neat and the crank handle readily removable. Always allow space to swing the crank.

thru wall type HCTF. Doors may be **Hand Crank** operated **Thru Face** of Wall from opposite or both sides of opening. Operator will work easily from either side with thrust and ball bearings thruout.



SIDE ELEVATION
TYPE HCTF

4 motor operated

CORNELL motor drives and remote controls rapidly pay for themselves through savings in operating man-hours, heat loss, and damage to door curtains left partially open thru man failure. Rate of operation is approximately .67 feet per second for the smallest to the largest of openings. CORNELL operators are made in self contained units completely assembled and mechanically tested in shop. They are specially constructed for the severe service for which CORNELL doors are designed. Standard motor drive assemblies are mounted on independent brackets for greatest flexibility of location on face of adjacent walls and maximum accessibility of operating parts for maintenance and adjustments. If side clearance is not available for standard wall mounted drives type MF, special bracket mounted drives Type MB are available. Doors mounted on the exterior face of wall can be operated by motor drives located inside Type MTF with roller chain connection thru a wall slot. All CORNELL standard and special power operators are available for right and left hand mounting. Special assembly allowing removal of motor without affecting Hand Chain operation available at extra cost.

CORNELL motor drives can be applied to existing CORNELL doors or new doors can be arranged for future motor operation. CORNELL door shafts are especially designed for motor operation, running on heavy duty high grade ball bearings. Heavier than standard endlocks are used on the curtains of all motor doors.

■ motor and controls

Motors are of special high torque elevator type with electric brakes. The gearing is completely enclosed and runs in an oil bath. An emergency hand chain operator is engageable from the floor, releasing the solenoid brake and opening the motor circuit. The emergency operator does not affect the setting of the limit switch. The motor cannot run when the emergency hand gears are in mesh. The motor is protected by overload relays. Automatic reversing starters and push button stations are furnished with all installations. Transformers are furnished when a low voltage control circuit is required.

Motor Doors are self locking through the solenoid brakes which are set when the doors are not operating. Push button stations can be provided with Padlocks or Cylinder Locks when required.

■ operation

On pushing the button the solenoid acts to open the motor brake and the door moves up or down at a rate of approximately .67 ft. per second. On reaching the top or bottom of the door travel, the limit switch operates, stops the motor, automatically cuts off the brake magnet and lets the brake go on with full power, locking the entire mechanism against further travel. The action is fool-proof. The door can be halted at any point by pushing the STOP button. Push button stations for outside use can be furnished in waterproof boxes.

Wires and wiring by others to wiring diagrams furnished by CORNELL.

Radio, electric eye, treadle, and electronic devices may be applied and wired into the control circuits of Cornell Doors.

■ other

fire doors

CORNELL Automatic Closing Fire Doors, manufactured in complete accordance with Underwriters requirements, can be equipped with motor operators. Doors so equipped cannot bear Underwriters labels but they are fully as effective as labeled fire doors.

Where Underwriters doors with mechanical fuse link automatic closing devices are not required by authorities having jurisdiction, rate of heat rise or smoke detecting devices can be furnished. These devices are wired into the control circuit of the motor drives and operate the doors electrically in event of fire, rapid heat rise or unusual smoke concentration.

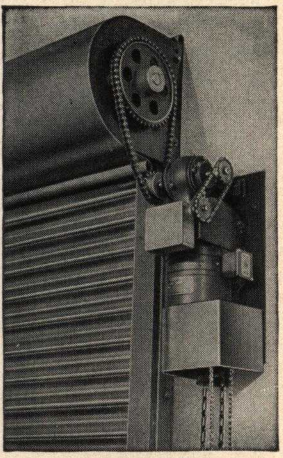
grilles

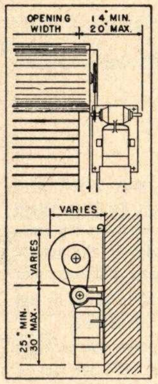
CORNELL Motor Drives described above and on Page 5 can be applied to CORNELL Rolling Grilles as illustrated on Pages 10 and 11.

counter shutters

CORNELL has developed a new Tom Thumb line of inexpensive motor drives for CORNELL 1¼" Flatslat Counter Shutters. See Page 13 of Catalog.

face mounting type MF

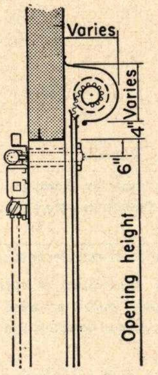




CORNELL Standard Motor Drive on independent mounting bracket includes electric brake, emergency hand chain operator, automatic reversing starter, "UP", "DOWN", "STOP" push button station and limit switch together with step down transformer for lower voltage control circuits when required. Reduction gearing is completely enclosed and runs in an oil bath.

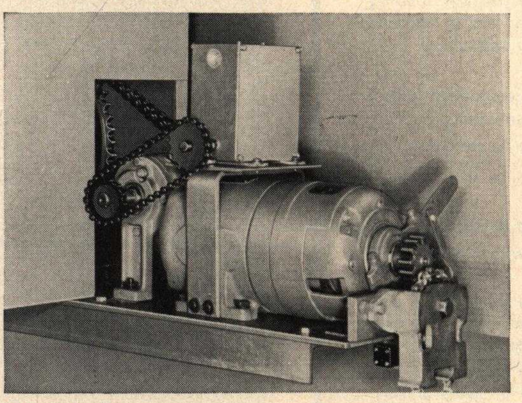
Motor Operator illustrated is right hand and below coil but can be located either side above or below coil. Note emergency hand chain which may be instantly engaged from the floor in the event of power failure.

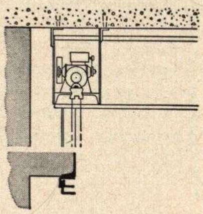
thru wall type MTF

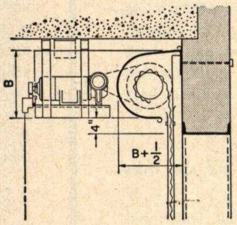


CORNELL Thru-Wall Motor Drive typical for doors mounted on exterior face of outside wall, motor operated from inside. Weather-proof exterior control station can be furnished, key operated for security.

bracket mounting type MB

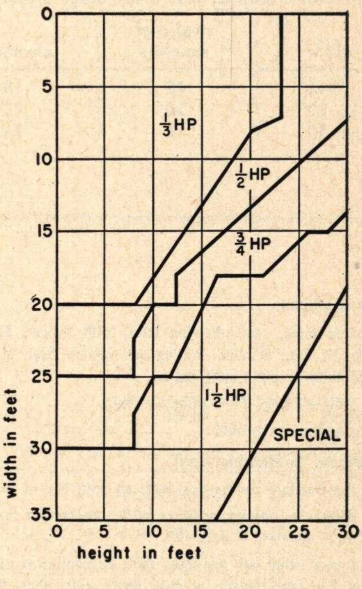






CORNELL Special Motor Drive requires no additional headroom or side clearance. Includes electric brake, emergency hand chain operator, automatic reversing starter, "UP", "DOWN", "STOP" push button station and limit switch together with step down transformer for lower voltage control circuits when required. Reduction gearing is completely enclosed and runs in an oil bath. Motor drive may be Right Hand as shown or Left Hand. Note emergency hand chain which may be instantly engaged from the floor in the event of power failure.

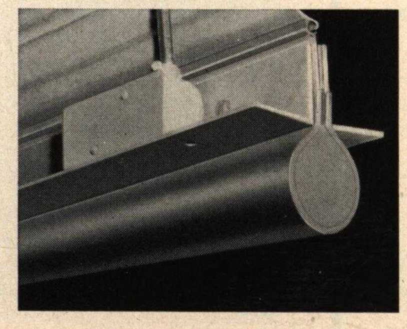
motor size selection



Approximate motor sizes of CORNELL Motor Drives may easily be selected from above chart.

Our motors are high torque elevator type and above chart includes a large minimum safety factor based upon standard gauge curtains. Use this same chart for CORNELL Rolling Grilles.

safety contact bottom bar



CORNELL "Feather-touch" safety contact edge on bottom bar instantly stops downward travel of door upon light contact with any obstruction in opening and may be arranged to reverse door travel if desired. Cable contactor is completely sealed in rubber tube and is effective for full width of opening. A flexible cable connects the safety edge to the door starter. There are no mechanical parts to maintain and complete unit is readily replaceable.

• specification

1 general Rolling doors as shown on drawings or specified shall be the product of Cornell Iron Works, Inc., Long Island City, N. Y., or approved equal.

Rolling doors shall be of manufacturer's standard construction.

2 work excluded Preparation of openings, structural or miscellaneous metal work, metal or wood trim, field painting and electric wiring for motor operators are not included in this specification.

3 curtains Curtains shall be formed of interlocking slats, 7/8" in depth at the crown and approximately 3½" center to center, of gauges in accordance with chart below. Curtains shall be designated to resist a wind pressure of 20 lbs. per sq. ft.

GAUGE CHART (Gauges are US Standard for Steel and Stainless; B & S for other materials)

width	steel and stainless	aluminum
0'-13'	22	18
13'-20'	20	18
over 20'	18	16

a) slat material.

(1) Cold-rolled, copper-bearing steel, with temper, hot galvanized with 1¼ oz. of zinc coating per square foot of flat metal, bonderized for paint adhesion.

(2) Stainless steel, 18/8 chrome nickel.

(3) Aluminum alloy 5052.

b) endlocks (malleable iron)

(1) For standard commercial doors on each end of alternate slats.

(2) Alternate. Special endlocks with compressible neoprene wind baffles at each end of each slat.

(3) Special wind-lock end-locks shall be applied to the curtain at about two feet centers for steel doors wider than 20.5 feet and over 340 sq. ft., and for all doors wider than 24 feet, and all aluminum doors wider than 12 feet or over 120 sq. ft.

c) bottom bars. The bottom edge of the curtain shall be finished with two angles not less than 1/8" or one angle not less than 3/16" thick.

(1) (Alternate) A flexible astragal shall be applied to make tight contact with the floor.

(2) (Alternate) Motor operated doors. The bottom of the curtain shall be provided with a sensitive edge, electrically connected to stop (reverse) the travel of the door on meeting an obstruction.

4 guides Guides shall be formed of not less than 3/16" steel (stainless steel) (aluminum) (bronze) of sufficient depth to retain the curtain under normal wind pressure. Where windlocks are used, suitable strips to engage them shall be provided in the guides. Top of the guides shall be flared for smooth entry of the curtain.

a) Guides for commercial doors shall be attached to jambs by not less than 3/8" bolts spaced not more than 30" on centers.

5 shafts Shafts shall be of steel pipe of sufficient size to carry the curtain load with a maximum deflection of .03" per foot of width, with inner shaft of cold-rolled steel. Counterbalancing springs shall be of oil-tempered wire, sealed in grease, shop tested to overload, and provided with means for adjustment after erection. Grease packed ball bearings or bushings shall be provided.

6 brackets Brackets shall be of steel, unbreakable armor-plate type, attached where possible to the extended section of the guides to form a continuous rigid assembly.

7 hoods Hoods shall be formed of not less than 24 USg galvanized steel (24 USg stainless steel) (#22 B & S bronze) (.04" aluminum), neatly fitted to the brackets and reinforced with stiffening flanges at top and bottom edges. Hoods wider than 14 feet shall be provided with intermediate reinforcement as required.

8 locks Doors shall be secured by

a) Slide bolts and hasps on bottom bar. Cylinder locks operable from one or both sides can be provided at extra cost.

b) Hook for securing hand chain with provision for padlocking.

9 operation Operation shall be by

a) Handles on bottom bar, self-coiling type.

b) Continuous hand chain and gearing on coil side (through wall).

c) Hand crank with extended crank handle (vertical shaft) on coil side (through the wall).

d) Motor operator, on coil side (through the wall). Motors shall be high-torque, crane-and-hoist type, with built-in-worm gear reduction running in oil bath and disc brake and brake release, arranged to drive the door at approximately 0.67 ft. per second.

e) Final drive from motor to door shall be by means of roller chain. Emergency hand operation shall be provided by hand chain and gearing or by means of a suitable disconnecting clutch. Electrical equipment shall include rotary limit switch to control door travel, interlock switch on emergency hand chain, magnetic reversing starter with overload protection and one three-button push button station. Equipment shall have NEMA I enclosures.

10 finish

a) Steel except galvanized curtain and hood painted shop coat metallic paint.

b) Stainless steel 2 B mill finish on curtain and hood. Guides and bottom bars mill finish. Special finishes available at extra cost.

c) Aluminum. Mill finish standard. Alumilited satin or colored finish available at extra cost.

11 erection Doors shall be erected by the manufacturer or authorized representative, and all parts necessary for a complete installation shall be provided.

12 guarantee Installation shall be guaranteed for one year against defects in material and workmanship.

MANUAL

type SCF face mounted

This door is designed for small openings (under 100 square feet in area and less than 8 feet in height). Guides and coil on wall face maintaining clear width and height of opening. Operation by lifting handles conveniently located on bottom bar.

type SCB between jambs

This door is generally used where "face of wall" construction is impractical. Guides mounted between the opening jambs or in recesses provided in the wall construction. The coil is mounted under the lintel. Operation same as face mounted door.

CHAIN/GEAR

type CGF face mounted

This door is designed for larger openings and is the accepted standard for use in industrial buildings of all types. Guides and coil on wall face maintaining clear width and height of opening. Where jamb clearances permit, guides are kept back 1" for protection. Operation by hand chain through reduction gearing.

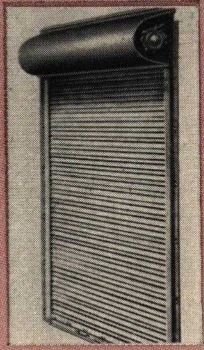
type CGB between jambs

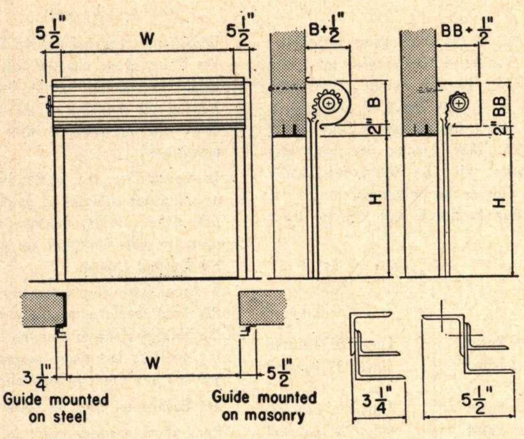
This door is primarily used where restricted overhead or jamb clearance makes "face of wall" mounting impractical. Guides mounted between the opening jambs or in recesses provided in wall construction. The coil is mounted under the lintel. Operation same as face mounted door.

NOTES **1** These are standard dimensions
Consult factory for special conditions

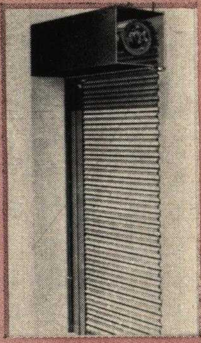
2 Opening dimensions in feet
Detail dimensions in inches

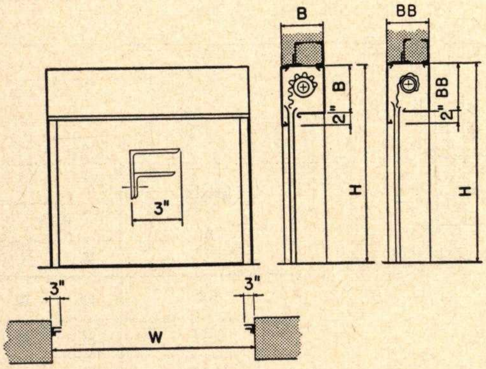
▲ For between jamb doors:
dimension H includes coil height



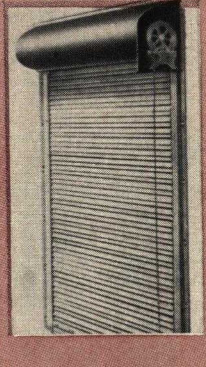


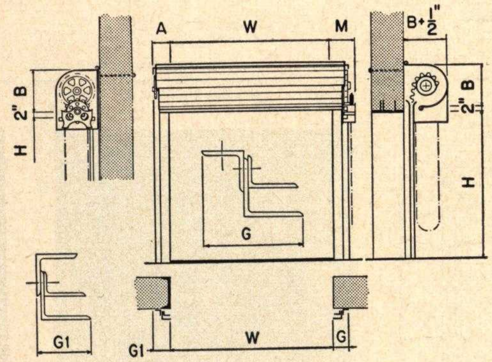
height H	**width W**	
	0-8	**8-12**
	BB	**B**
0-8	12	15
8-10	—	15



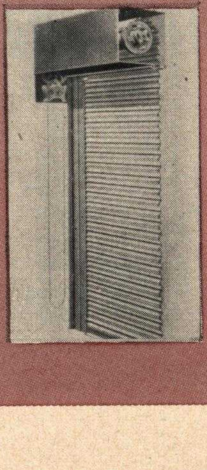


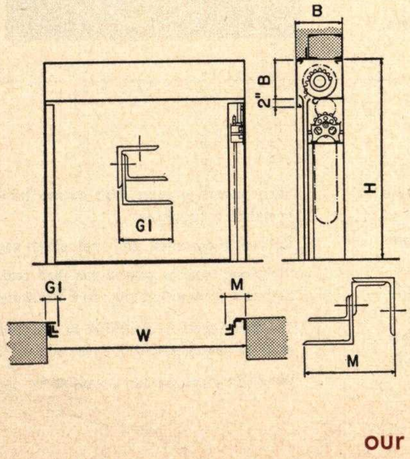
height H▲	**width W**	
	0-8	**8-12**
	BB	**B**
0-9	12	15
9-11	—	15





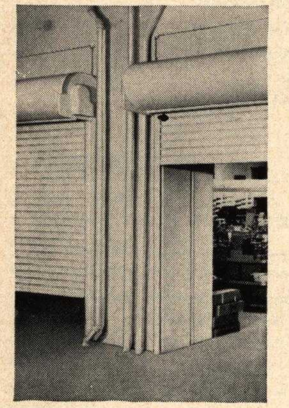
height H	**width W**														
	0-15					**15-20**					**20-24**				
	B	**G**	**G1**	**M**	**A**	**B**	**G**	**G1**	**M**	**A**	**B**	**G**	**G1**	**M**	**A**
0-10	15	5½	3¼	7	7	16	6	3¾	7½	7	16	6	3¾	9¼	7
10-14	16	5½	3¼	8¾	7	18	6	3¾	9¼	7	18	6	3¾	9¼	7
14-18	18	5½	3¼	8¾	7	18	6	3¾	9¼	7	20	6	3¾	9¼	9
18-22	20	6	3¾	9¼	7	20	6	3¾	9¼	9	22	6	3¾	9¼	9





height H▲	**width W**								
	0-15			**15-20**			**20-24**		
	B	**G1**	**M**	**B**	**G1**	**M**	**B**	**G1**	**M**
0-11	15	3¼	5½	16	3¾	6	16	3¾	6
11-15	16	3¼	5½	18	3¾	6	18	3¾	6
15-20	18	3¾	6	18	3¾	6	20	3¾	6
20-22	20	3¾	6	20	3¾	6	22	3¾	6

• LLENROC



"Llenroc" (Cornell spelled backwards) is the trade name designation for our Rolling Steel Fire Doors. Fire tested and labeled by Underwriters Laboratories, Inc. Approved by Factory Mutual laboratories, carry the 3 hour test label of the N. Y. City Board of Standards & Appeals No. 1428-39SM, and N. Y. State Department of Labor Board of Standards and Appeals No. B.S.A. 2408. Llenroc fire doors give maximum savings in insurance rates. All Fire Doors individually labeled for openings 120 sq. feet with neither width nor height exceeding 12'. Certificates of inspection furnished with oversize doors for openings to 24' x 24'.

Fire Wall Doors	3 Hour Rated	Class "A" Labeled
Vertical Shaft Doors	1½ Hour Rated	Class "B" Labeled
Corridor and Partition Doors	¾ Hour Rated	Class "C" Labeled
Exterior Doors	1½ Hour Rated	Class "D" Labeled

Note: Class "A" doors must be automatic closing. Other classes normally furnished automatic closing may be non-automatic.

Underwriters Labeled Rolling Steel Fire Doors close automatically upon the fusing of an exposed link at 160 degrees F. These doors operate easily for normal service independently of the automatic devices. Handles are provided on the bottom bar for manual operation or the doors can be equipped with Hand Chain Operators for mechanical operation.

In case of fire, the fusible links release the automatic closing mechanism which provides a powerful and positive impulse to start the door down. This is quickly checked, giving a braking action as the door descends. Governors are provided where required to further retard the speed of closing.

A flame stop, also automatically released, closes the space between the hood over the door coil and the counterbalance shaft to prevent the passage of flame over the top of the curtain. Continuous self aligning endlocks bar flame passage around edges of curtain and fusible washers which quickly melt allow free expansion of all parts.

See Page 4 for data on Power Operators for Rolling Steel Fire Doors.

Hand chain operator gears on mechanically operated doors also automatically disengage on fusing of the link.

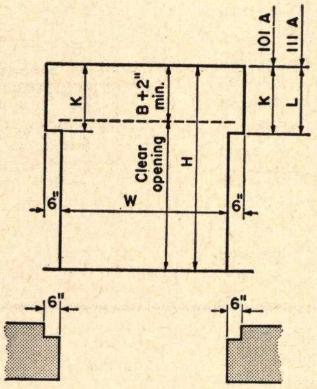
CORNELL Fire Doors are quickly reset after automatic closing, without dismantling the door or removing the covering hood.

• wall pockets

Where it is desirable to preserve the full width of the opening the side guides of a between jambs installation may be located in the 6" recesses shown at right, and on Page 9. It is then necessary to provide wall pockets overhead, as shown, to accommodate the brackets which support the door. If guides may protrude into the opening the overhead cut out pockets are unnecessary.

NOTE: Where overhead pockets are used, lintels must be lengthened to suit.

For B dimension, see page 9



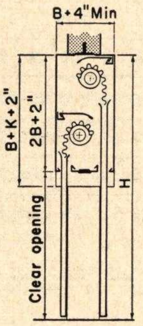
height H	width W 0-11 K	0-11 L	11-12 K	11-12 L	12-13 K	12-13 L
0-8	23	38	23	38	23	38
8-11	24	39	24	39	24	39
11-13	25	40	25	40	25	40
13-14	25	40	25	40	25	44

• double doors

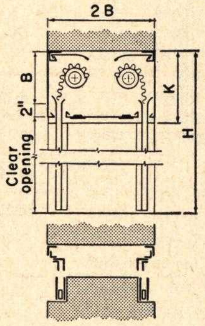
For maximum protection fire doors can be used in pairs. Between jamb installations may be arranged with coils superimposed or in tandem depending on headroom and wall thickness. Both doors controlled by common fusible links.

Guides may be recessed or mounted in opening. See clearance tables this page.

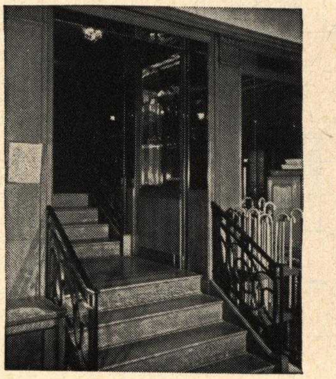
For B dimension, see page 9



SUPERIMPOSED
LLENROC 101A



TANDEM
LLENROC 101A



• specifications

Automatic fire doors shall bear the label of the Underwriters Laboratories Inc. and shall be manufactured to their specifications in all particulars.

The doors shall be manually operated by handles on the bottom bars either face of wall mounted (Llenroc 1A) or between jambs mounted (Llenroc 101A).

(Where mechanical operation by hand chain and reduction gearing is required specify Llenroc 11A for face of wall or Llenroc 111A for between jambs.)

Upon fusing of a fusible link the automatic closing mechanism shall force the door curtain downward. Governors shall be provided where required to control the closing speed.

Chain operating gears shall automatically disengage when link fuses (where mechanical operation is specified).

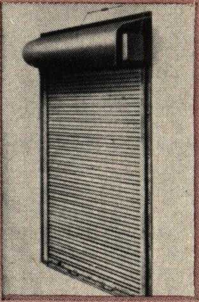
Automatic operation shall not affect normal operation of the doors in general service.

The doors shall be primed one shop coat of rust inhibiting paint and shall be complete with all Underwriters approved hardware and fittings to make a complete installation.

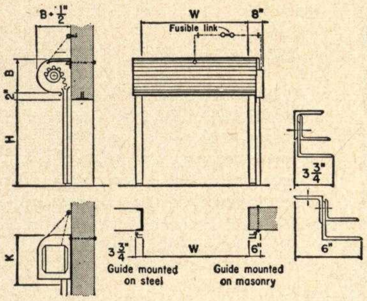
The doors shall be installed by the manufacturer or his authorized representative and shall be guaranteed for (1) year against faulty workmanship or material.

Detail drawings shall be submitted for approval of Architect.

MANUAL
face mounted



Type Llenroc 1A



NOTES

1 These are standard dimensions
Consult factory for special conditions

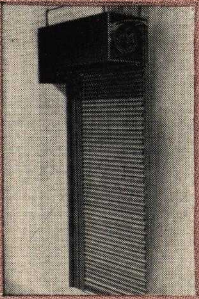
2 Opening dimensions in feet
Detail dimensions in inches

3 Dimension K is clearance required both sides
for automatic closing device

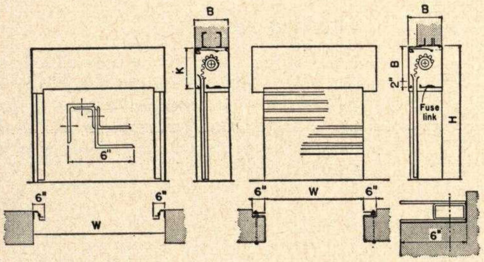
▲ For between jamb doors:
dimension H includes coil height

H	B	K
0-7	16	23
7-10	18	24
10-12	20	25

between jambs

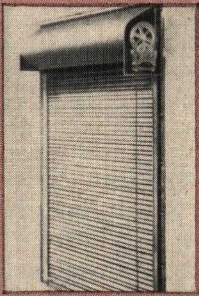


Type Llenroc 101A

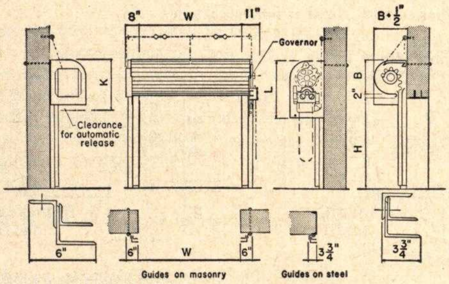


H▲	B	K
0-8	16	23
8-11	18	24
11-13	20	25

CHAIN/GEAR
face mounted

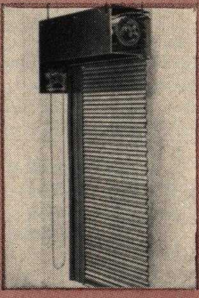


Type Llenroc 11A

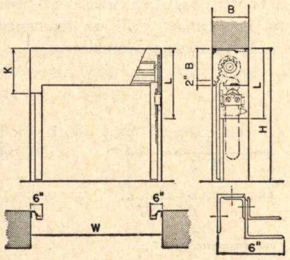


height H	width W 0-11 B	K	L	11-12 B	K	L	12-13 B	K	L
0-7	16	23	34	16	23	34	16	23	34
7-10	18	24	35	18	24	35	18	24	35
10-11	20	25	36	20	25	36	20	25	36
11-13	20	25	36	20	25	36	20	25	40
13-14	20	25	36	20	25	40	20	25	40

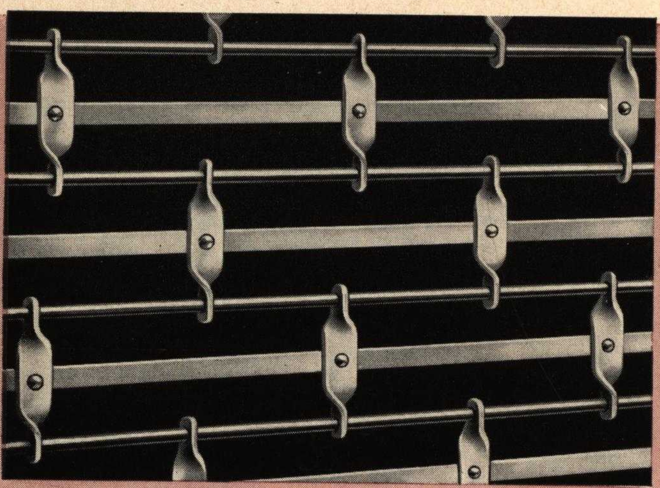
between jambs



Type Llenroc 111A

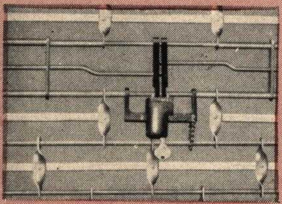


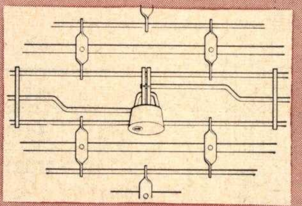
height H▲	width W 0-11 B	K	L	11-12 B	K	L	12-13 B	K	L
0-8	16	23	38	16	23	38	16	23	38
8-11	18	24	39	18	24	39	18	24	39
11-13	20	25	40	20	25	40	20	25	40
13-14	20	25	40	20	25	40	20	25	44



1931

CORNELL introduced the Rolling Grille to America in 1931. Operating like CORNELL Rolling Doors, they give equal security without blocking light, air, or vision. They present an impassable barrier for store fronts, school corridors, bars and counters, markets, banks, drive-in entrances, etc. Rolling Grilles can be combined with Rolling Steel Doors in the same opening to give maximum year round protection with ventilation. Grille Guides may be completely concealed in walls and overhead coil concealed in ceiling. Available in Galvanized Steel, Aluminum, Stainless Steel and Bronze. Our standard "Butterfly" design curtain is universally accepted for its combination of graceful beauty and great strength.

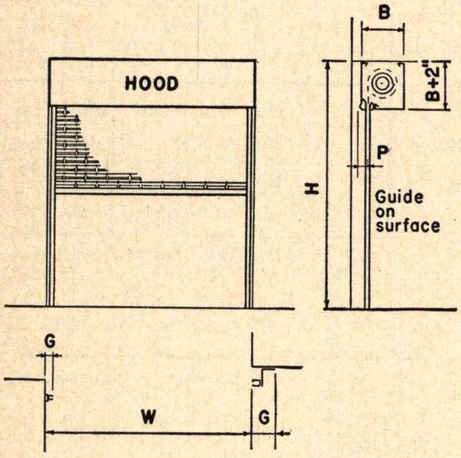




• locking devices

Padlocking device waist high in center of Grille curtain is standard. Spring return locking bars throw to both sides engaging holes in backs of Grille guides. Cylinder locking devices are available at small additional cost, can be master keyed, and are workable from either side of Grille curtain. Locking devices take standard mortise cylinders which can be installed in the field and should be furnished by the hardware contractor if master keyed. A CORNELL patent.

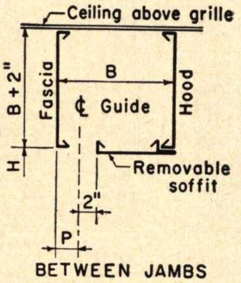
• details



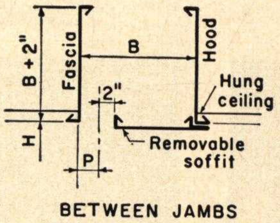
H	B	P
0' to 6'	14''	2⅜''
7' to 8'	15''	2⅜''
8' to 10'	16''	2⅞''
10' to 14'	18''	3⅛''
14' to 16'	20''	4¼''

head

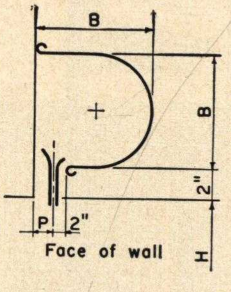
- The overhead coil, or grille box, may be located on the face of a wall; above a hung ceiling; or, if below the ceiling, can be treated to resemble a beam.



BETWEEN JAMBS
COIL BELOW CEILING



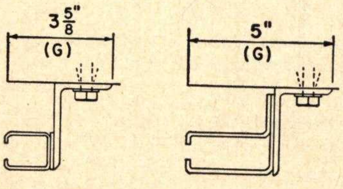
BETWEEN JAMBS
COIL ABOVE CEILING



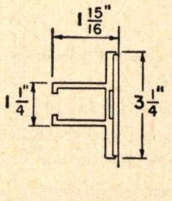
TYPICAL ROLLING GRILLE HOOD & BRACKET

guides

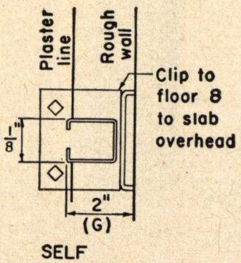
- Grille guide assemblies support coil brackets above. Grille guides may be concealed in corridor walls, or may be set on the surface of the wall.
- Guides are backed up with steel supporting members as shown, ready for installation on corridor walls. Where guides are recessed into corridor walls we recommend wood blocking in pockets. Guides and brackets should be installed before tiling or plastering.



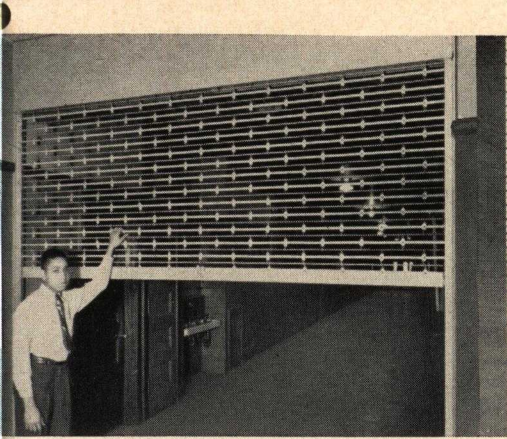
FACE OF WALL ON MASONRY

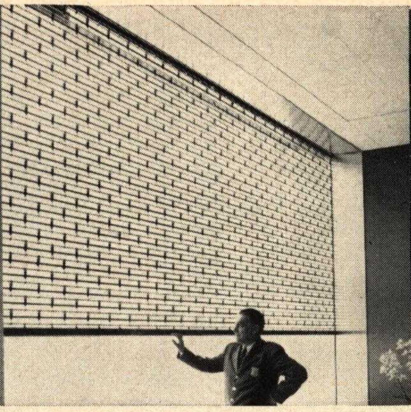


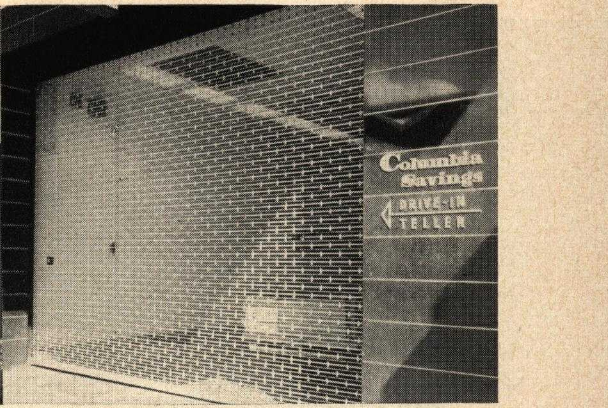
EXTRUDED
ALUMINUM



SELF
SUPPORTING







Top Left
Nickel Bronze Corridor Rolling Grille—New York City High School

Top Center
Stainless Steel Rolling Grille—Cleveland Museum—Architects, Hays & Ruth

Top Right
Motor Operated Rolling Grille—Drive in Bank—Petroleum Club, Denver
Architect, C. D. Strong

Right
Store Front Rolling Grilles—New York City

• specifications

general

grille: Rolling Grilles shall be Butterfly Type. The grille curtains shall be made of 5/16" round hard drawn galvanized steel bars running continuous horizontally from jamb to jamb and locked into rolled steel vertical side guides. The horizontal bars are flexibly connected by vertical links of galvanized steel, riveted to galvanized flat bars, which permit the entire grille to coil overhead. No openings in the grille shall be large enough to pass a 1¼" diameter ball through. The ends of the bars shall be provided with straight continuous malleable, or steel, endlinks of self-aligning construction, each link locking in the lips of the side guide to prevent pulling out of the grille.

shaft: The grilles shall be counterbalanced by fine oil-tempered springs located in the overhead horizontal pipe shaft.

spring adjustment: Provision shall be made on all grilles, including those between jambs, for easy adjustment of spring balance in field.

guides: Side guides shall be special rolled steel sections. Weight of material and depth of the guides to be as required for the size of grille and type of installation. Note: Extruded Aluminum Guides are standard for all galvanized steel corridor grilles. (See Guide details opposite page).

hoods: Hoods over grille coils shall be formed of 24 gauge (.040 Aluminum) galvanized steel. Where coils are above hung ceilings, removable soffits shall be 24 gauge (.040 Aluminum) galvanized steel. (See Hood details opposite page).

operation: Grilles in galvanized steel, stainless or bronze up to approximately 120 sq. ft. can be operated manually, push up, with pole hook engaging slot in bottom bar to start Grille down. If conditions demand push up operation for larger sizes, steel grille curtains lightened with aluminum or all aluminum curtains can be furnished.

Hand chain, hand crank, or motor operation is available for grilles. Select Operator clearances and specifications from Rolling Steel Door data Pages 5-7.

locking devices: Padlocking device waist high in center of Grille shall consist of spring return throw bars engaging holes in back of guides. Padlocks by others.

Optional-Cylinder locking device operable from either side of Grille curtain can be substituted for padlocking device. If master keying required, lock cylinder is to be furnished by hardware contractor.

metals

Rolling Grilles available in Aluminum, Stainless Steel, and Bronze. Substitute the desired metal for "galvanized steel" in above specification.

finishes

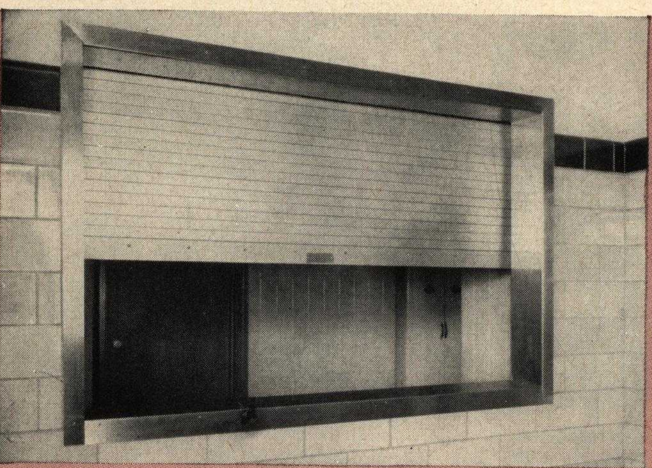
galvanized grilles must be spray painted because of the nature of their construction. Brush painting or dipping will leave messy paint blobs at the joints. Aluminum or Bronze paint is generally accepted. Specify sprayed paint finish.

aluminum grilles shall be etched to a silvery satin finish followed by Anodizing or Alumiliting. This finish removes tool marks and surface imperfections, and stops oxidation with a hardened surface easily maintained. This finish can also be furnished in color. Where appearance is not a prime consideration a more economical dull mill finish is available. If the material is exposed to weather, or if it is important to preserve the lustre of the finish, anodizing or alumiliting is a necessity. This does not affect the texture of the finish. It is necessary to use compatible alloys to get an even tone.

stainless steel grilles—All installations—All metal shall be mechanicaly ground and polished to a "No. 4" satin finish.

bronze grilles—All metal shall be mechanically buffed to a warm gold finish and lacquered.

1¼" flat slat



CORNELL 1¼" FLATSLAT Rolling Shutters are in wide use for lunch and kitchen counters, coliseums and thruway service centers, concessions of all kinds, ticket and teller's windows, bars, terminal stands, booths, and many other smaller openings not requiring the larger, more rugged slat curtains. The flush surface of the Slat gives a pleasing appearance and takes a fine polish.

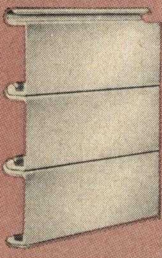
The 1¼" centers of the curtain permits coiling in reduced sizes and the side guides take minimum space. Light removable mullions, or pilasters, can be used to divide wider openings. Recommended for widths over 18'.

galvanized steel 22 U. S. Gauge is the standard curtain and can be painted in the field to match surroundings. Aluminum coated (Aluminized) Steel can be had at a small extra charge. Same in appearance as galvanized steel. Also readily available are:

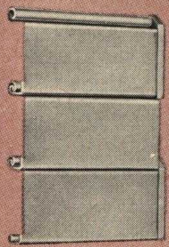
a) **stainless steel** rolled from 302 Alloy and mechanically ground and buffed to a #4 Satin finish.

b) **bronze** rolled from architectural bronze alloy 20 B & S and buffed to a warm gold finish then lacquered.

c) **aluminum extruded** .050 thick then etched to a silvery satin finish and alumilited or anodized for permanent protection of lustre. This finish removes tool marks and surface imperfections, and stops oxidation with a hardened surface easily maintained. Colors are also available in the full color range offered by the Aluminum Companies.



◀ Extruded

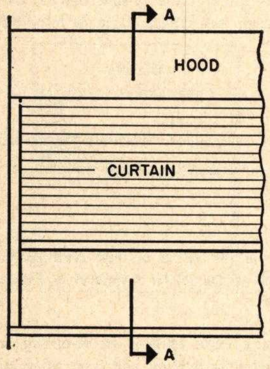


Rolled Metal ▶

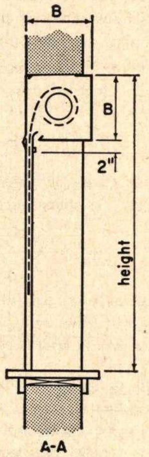
standard operation

Self coiling (push up) is standard. Removable crank can be furnished for very wide openings or for installations where layouts make self-coiling operation inconvenient. CORNELL Tom Thumb motor drives are also available for maximum convenience. They are inexpensive, neat and compact, ranging from 1/15 to ⅛ H.P. Wiring into 110V house circuit is simple since no special controls are involved.

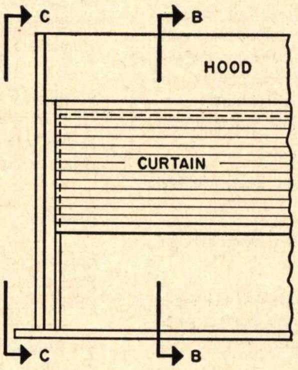
• clearances



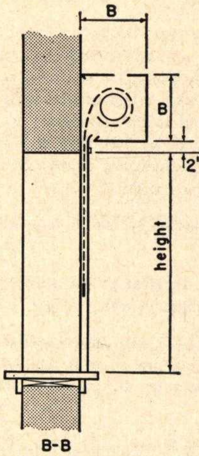
HALF ELEVATION



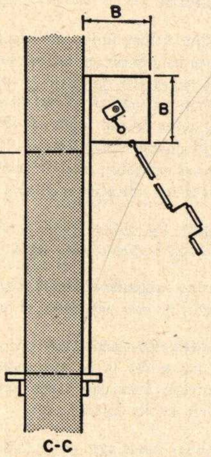
A-A
(type SCB)



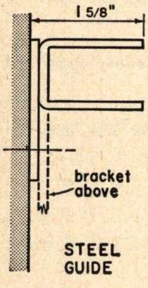
HALF ELEVATION



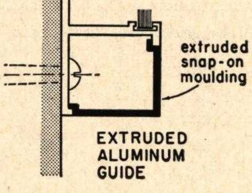
B-B
(type SCF)



C-C
(type HCF)

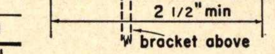


STEEL GUIDE

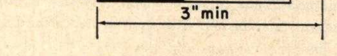


EXTRUDED ALUMINUM GUIDE

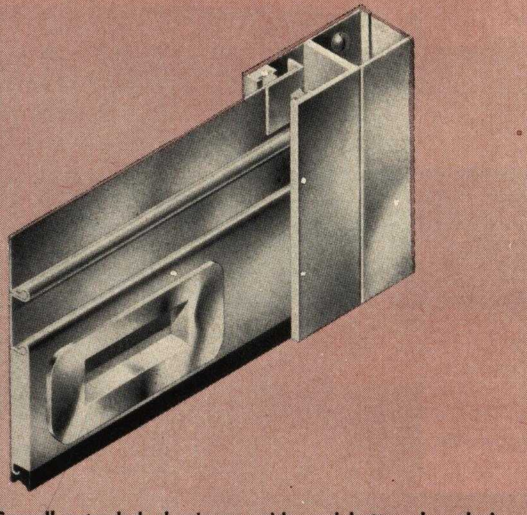
width	height	B	
		min	std
0'-8'	3'-0"	8"	10"
8'-18'	4'-6"	10"	12"
	7'-0"	10"	13"
	8'-10"	12"	13"



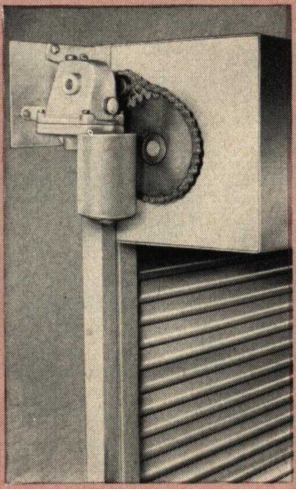
STEEL GUIDE



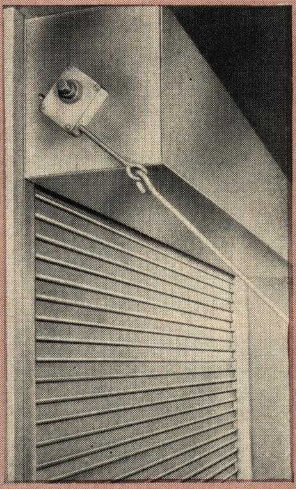
EXTRUDED ALUMINUM GUIDE



New Cornell extruded aluminum guide and bottom bar design
All wall fastenings are concealed in slim, new, rectangular guide. Locking clips secure curtain in guides and deep nap stripping makes installation dust and rattle proof. Curtain bottom bar has flush handles and concealed slide bolts. No hardware or fittings mar flush exterior surface. Extruded rubber astragal securely interlocks with bottom bar sealing against and protecting counter top.



motor operation
CORNELL Tom Thumb motor drives may be bracket or wall mounted to suit available clearances. Adjustable slip clutch eliminates limit switch and permits emergency manual operation in the event of power failure. Designed for operation on lighting current, units are compact, inexpensive, and offer maximum convenience of operation.



crank operation
Removable crank operator recommended for very wide openings or for installations where counter layouts make self coiling operation inconvenient. Eliminates crank box at counter level in working area.

• types

operation	location	Cornell type number
push up	face of wall between jambs	SCF SCB
crank	face of wall between jambs	HCF HCB
motor	face of wall between jambs	MF MB

• specifications

Curtain shall be constructed of 1¼" Flatslat interlocking sections ½ inch deep. Alternate slats shall be provided with end locks to keep the curtain in alignment.

a) Aluminum extruded from alloy 6063, 0.05" thick.

b) Galvanized or aluminized steel rolled from 22 US gauge metal.

c) Stainless Steel rolled from alloy 302, 22 US gauge.

d) Bronze rolled from architectural bronze alloy, 20 B & S gauge.

bottom bars

a) With aluminum curtains, bottom bar shall be a rectangular extrusion with flush aluminum handles, concealed slide bolts, and interlocking extruded rubber astragal. Exterior face of bottom bar to be flush with no exposed hardware or fittings.

b) c) and d) with steel, stainless, or bronze; bottom bar to be formed of a single angle finished to match curtains. Bottom bar of curtain will be fitted with vinyl plastic strip, at extra cost, when needed to protect the counter.

guides shall be at least 1⅜" deep and of 14 US gauge minimum thickness and run continuous to the top of brackets above the lintel to furnish bracket support and fastenings.

a) With aluminum curtains guides shall be rectangular extrusions formed to engage retaining clips on curtain edge, locking curtains securely in guides. All wall fastenings to be concealed. Replaceable heavy nap stripping with aluminum backing shall be locked into guides to dustproof and rattle proof the curtain. Stripping shall be silicone treated for lifetime wear and frictionless operation.

b) With galvanized steel curtains guides shall be steel painted one prime coat.

c) With Stainless Steel curtains guides shall be alloy 302; at least 14 US gauge and finished to match the curtains.

d) With bronze curtains the guides shall be formed from architectural bronze alloy at least 14 US gauge and finished to match the curtain.

operation—Manual—self-coiling (push-up) operation is standard for 1¼" Flatslat Shutters. Operation by removable crank can be furnished for very wide openings or for installations where counter layouts make self-coiling operation inconvenient.

operation—Motor—CORNELL Tom Thumb Motor Drive shall consist of 110 volt single phase motor with built in reduction gearing connected by roller chain to door through friction clutch. Clutch to be adjustable to allow slippage on meeting an obstruction, permit emergency hand operation and avoid necessity for limit switches. Shutter to be controlled by double throw toggle switch with spring return to OFF position. Magnetic starter not required. Wires and wiring by others to CORNELL wiring diagram.

hood—All shutter coils shall be enclosed in sheet metal covers, or hoods, not less than 24 US gauge in thickness, and of the same metal and finish as the Flatslat curtain proper.

shafts—Shall be steel tubes or pipes, with oil tempered springs to counterbalance the curtain weight, and of sufficient stiffness to hold the maximum deflection to 0.03" per foot of width. All shafts shall have provision for adjustment of spring counter balance in the field.

brackets—Shall be steel plate not less than ⅛" thick and secured to the extended guides.

locking—Shall be accomplished by 2 chute bolts on the bottom bar engaging slots in the side guides. Cylinder locks can be provided at additional cost.

finishes

steel shutters, all metal parts, except galvanized or aluminized, curtains and hoods shall be given a sprayed coat of prime metallic paint.

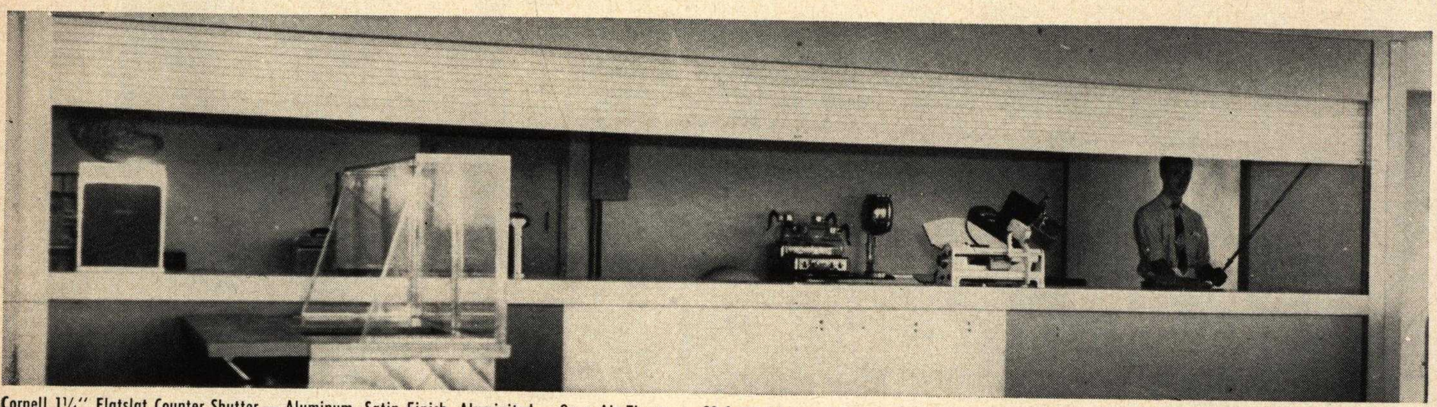
stainless steel—All installations—All metal shall be mechanically ground and polished to a "No. 4" satin finish.

bronze—All metal shall be mechanically buffed to a warm gold finish and lacquered.

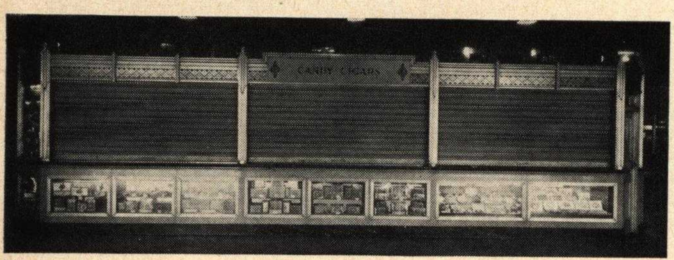
aluminum—Shall be etched to a silvery satin finish followed by Anodizing or Alumiliting.

SHUTTERS concluded

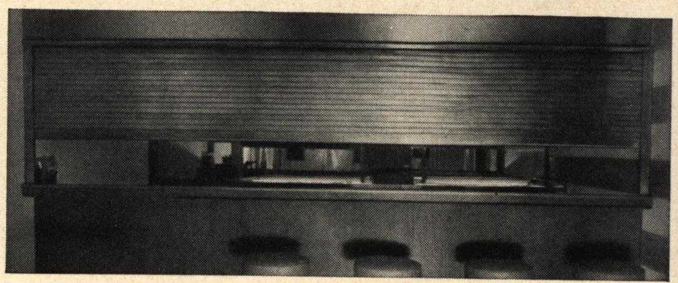
• crank operation



Cornell 1¼" Flatslat Counter Shutter — Aluminum, Satin Finish, Aluminited — Open Air Theatre — 20 feet wide, crank operated



Three of 52 Cornell Counter Shutters in R.R. Terminal



Bar on Luxury Liner protected by Cornell Stainless Steel 1¼" Flatslat Counter Shutter

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PASS WINDOWS packaged

• shutter type

Introducing a new CORNELL product—A Stainless Steel Frame combined with a CORNELL 1¼" Flatslat Aluminum Shutter in a completely assembled, compact, ready to install unit.

The guides are formed in the sides of the frame and the shutter rolls up at the head in a Stainless Steel enclosure.

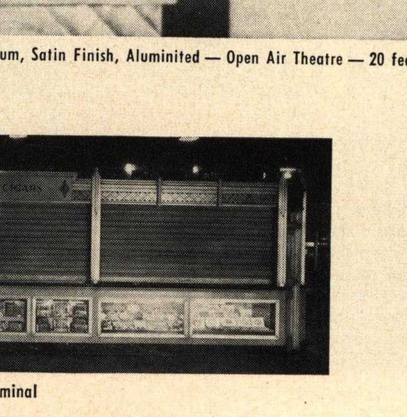
The jambs and head of the frame are 16 gauge Stainless Steel and the sill 14 gauge (Type 302 No. 4 Finish). Frames are fabricated to suit wall thickness and provided with masonry jamb anchors.

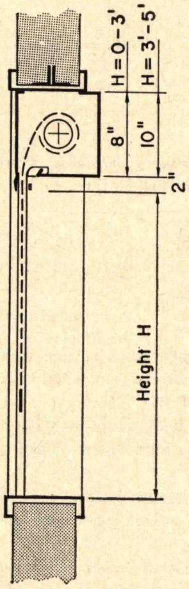
Shutter may coil under the head of the frame as shown or on the inside face of the frame with the coil above head.

Extruded Aluminum Shutter and counterbalance mechanism to CORNELL Specifications on Page 13. Aluminum satin finished and alumilited for permanent protection.

Shutter may be specified in Stainless Steel to match frame.

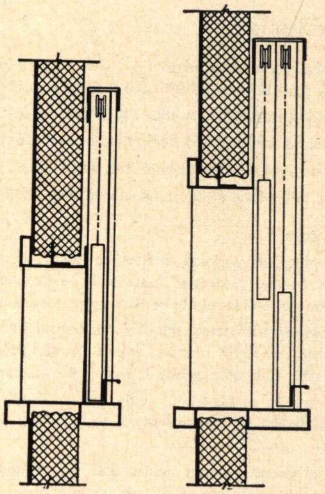
A painted steel frame with Stainless Steel Sill and galvanized steel shutter is also available.



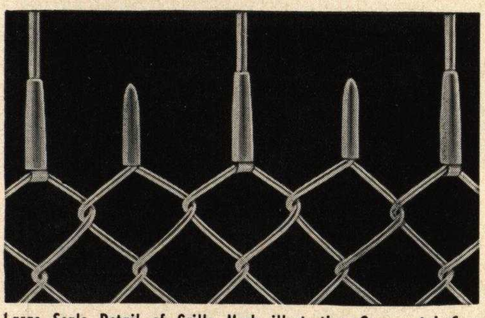


• rigid type

Completely assembled unit consists of one or two vertically rising panels designed for quick economical installation.



SLIDING GRILLES



Large Scale Detail of Grille Mesh illustrating Ornamental Caps and Sleeves

The CORNELL Sliding Grille is a patented steel curtain, of the heaviest galvanized chain link factory fence, extended to any height of opening by galvanized rods running to a track above. Aluminum bright dip wire is also available.

The grille can be used anywhere to keep out intruders, allowing free circulation of air in hot weather, and full visibility. Other applications include switchboard fronts, corridors, store fronts, parking lots, markets, storage bins, garages, auditoriums, counters, bars, etc. The construction makes it possible to nest the Sliding Grille at the side of an opening in a space only one-fifth of the opening width. The Sliding Grille will also travel around a curve and lie at a right angle to the opening if there is 10-in. room available from the edge of the jamb.

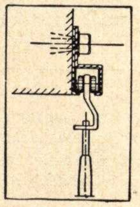
Bottom tracks are not desirable for sliding grilles. Additional security for wide openings can be provided by drop bolts or by chains to flush rings in the floor, spaced as desired.

Sliding grilles will travel around reverse curves and can be used for the protection of projecting or "island" counters and show cases.

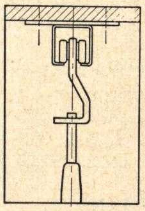
Provision is made for padlocking, from either side, with a stretching latch for wide grilles, if desired. Standard finish: All metal parts of the grille except bright galvanized surfaces shall be sprayed with one coat of aluminnum paint.

Send for Bulletin with Standard Details.

Galvanized Steel Sliding Grille, Bi-Parting.



track on face of wall



track shown under ceiling

Bright Aluminum Sliding Grille, Minneapolis Store

ROLLING PARTITIONS

The CORNELL Side Rolling Partition is made of 1¼" flat interlocking metal slats coiling on a vertical pipe shaft. The Partition rolls in top track guided by bottom track, operates easily and travels around curves with radii as small as 6 inches.

These partitions were developed by CORNELL to meet a growing demand for a satisfactory closure, with the protection that only metal can provide for concessions, newsstands and similar openings with curved or otherwise irregular fronts.

Available in galvanized steel, aluminum, stainless steel or bronze.

Send for Bulletin with Standard Details.

ESCALATOR COVERS

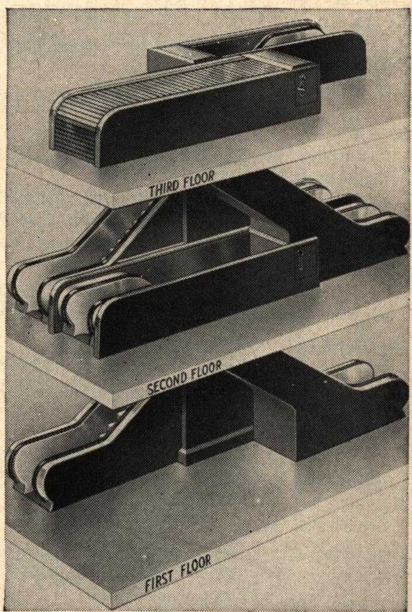
Orignally designed by CORNELL, in collaboration with Elevator companies and architects, for department store installations, these fireproof covers have been improved through the years to their present convenient, compact construction, with patented operating mechanism.

One person can easily open and close the covers with a crank, which folds into a flush pocket. A safety switch prevents operation of the stairway when cover is closed. Self contained, self supporting, and requiring no special provision for installation, they can be conveniently installed over existing stairways.

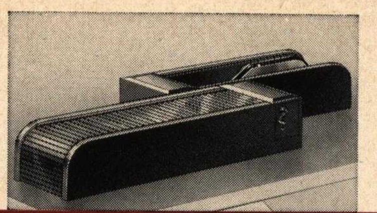
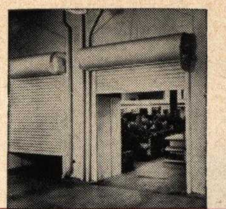
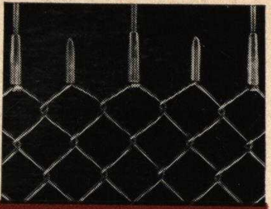
Automatic electric motor operation is readily applied to open and close upon the action of a heat rise device. Smoke detection controls are also available. A safety edge on the bottom bar stops motion in case an obstruction is met. Motion immediately resumes on removal. It will also reverse, if required, and return. Emergency hand operation is always available.

These closures have been approved and installed in many of the largest department stores in New York and other large cities. A complete, full sized enclosure has been successfully fire-tested for 3 hours at 1800 degrees F. An NFPA approved method of protection.

We urge consultation with Cornell engineers in the early stages of design. Send for six-page bulletin.



Perspective view of a bank of moving stairways in "criss-cross" arrangement with Cornell Fireproof Enclosures shown at second and third floor levels.

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